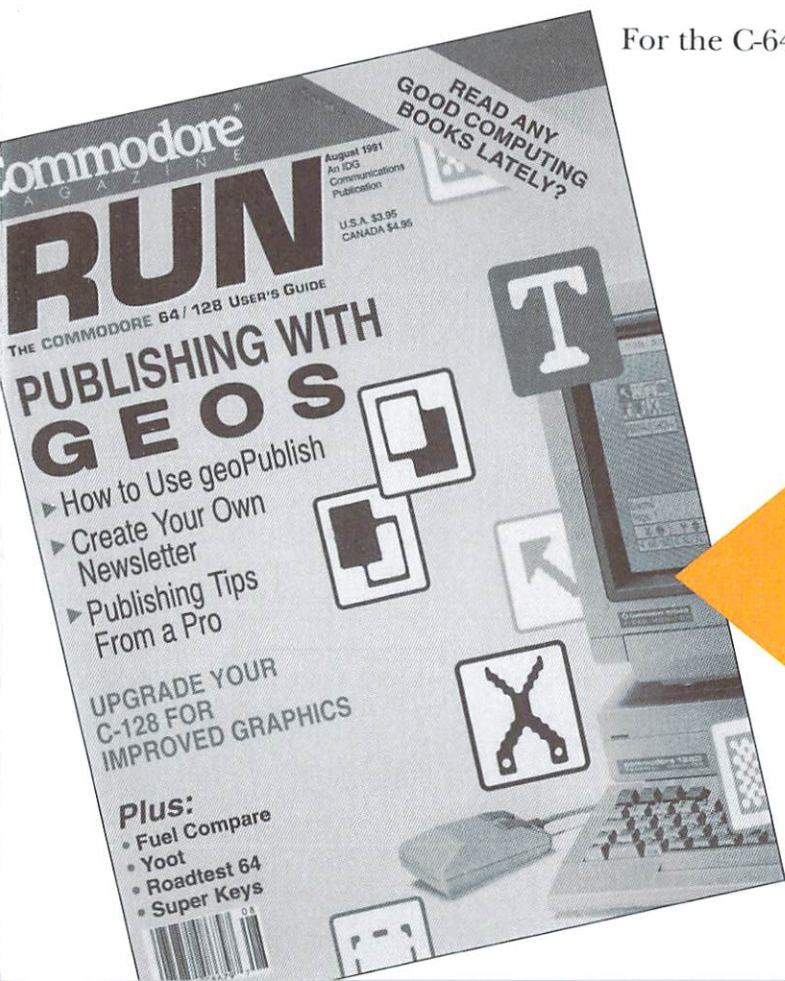


July/August 1991 Edition

RE_≡RUN

RUN Programs on Disk

For the C-64 and C-128



*Plus:
Extra
Bonus
Programs!*

Introduction

July/August 1991 ReRUN

TEMPUS FUGIT! Time really does fly when you're having fun. Actually, I'm glad the deadlines for this edition arrived so quickly. It's that much sooner that I get some gratification knowing we've done our best to prepare a quality selection of programs. Readers often ask where we find so many useful and entertaining programs to publish in *RUN* and on the ReRUN disks.

The answer is simple—they're written by people from all walks of life: high school and college students, business people, retirees and teachers. Many of these folks are like you, the typical ReRUN user. Their C-64 or C-128 does everything that they need from a computer, so they have little interest in spending a lot more money for a faster, more colorful computer. They've maximized the usefulness of their 64 or 128, in turn perpetuating the life of the 8-bit Commodore computers far longer than even the most optimistic Commodore fanatic could have predicted.

Best of all, we continually encourage people like yourself to contribute your best work. Who knows, maybe you'll write a useful program similar to the one that begins this edition of ReRUN, called **Some Like It Hot**. With this 64/128 program, you can determine which method and fuel is most cost-effective for heating your home in the winter months. *Now* is the time to fill your home oil tank or wood shed, not the middle of winter when prices for oil and firewood are much higher.

You'll find the next program is a Korean board game called **Yoot**. Written for the C-128's 40-Column mode, Yoot pits two players against one another in a race to be the first one "home" on the board. It's both entertaining and mentally stimulating. The next program to grace the list is **Roadtest 64**. Unlike most automotive-oriented programs, you're not testing your driving skills. Rather, Roadtest 64 is a program that tests both your understanding of traffic signs and knowledge of states and their respective capitals.

The last program from the July/August issue of *RUN* is **Super Keys**, an easy-to-use utility for quickly programming each of the C-64's function keys, with commands similar to C-128's for added versatility.

Moving on to the four bonus programs, the first is **Movie Phile 64**. Since C-128 owners were treated to Movie Phile 128 in the last edition

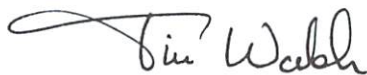
of ReRUN, author Barbara Craig thought it was only fair that C-64 users could enjoy her easy-to-use videotape database.

Next is **RUNbase II** for the C-128. The original RUNbase 128 appeared in the January 1990 issue of *RUN*. It was a good program, but left room for improvement. By the skillful hands of Commodore expert Dr. Hugh McMenamin, RUNbase was transformed into a more powerful, trouble-free database for your C-128. Try it and you'll be pleasantly surprised.

David Martin of Plaque Man fame brings us **RUN Copy II**—a top-notch dual-disk copier for the C-64 and 1541. It also works fine with 1571 drives, if they're powered up in 64 mode.

Finally, there's our last bonus program, called **Math Matcher**. Your goal in this joystick-driven educational program for the C-64 is to match a math problem displayed in the middle of the screen with numbers on a grid covering the rest of the screen.

That's all for this month's edition of ReRUN. We'll all be back in another two months. Try to stay out of the heat until then.



Technical Manager
RUN Magazine

Directory

PAGE	DOCUMENTATION	DISK FILENAME	FILE TYPE
		MENU 128 _____	BASIC
		MENU 64 _____	BASIC
1	SOME LIKE IT HOT (C-64)	FUEL COMPARE _____	BASIC
3	YOOT (C-128)	YOOT _____	BASIC
4	ROAD TEST (C-64)	ROAD TEST 64 _____	BASIC
5	SUPER KEYS (C-64)	FUNCTION KEYS _____	BASIC
6	MOVIE PHILE (C-64)	MOVIE PHILE 64 _____	BASIC
8	RUNBASE II (C-128)	RUNBASE II _____	BASIC
12	RUN COPY II (C-64)	DISK COPY 64 _____	ML
13	MATH MATCHER (C-64)	MATH MATCHER _____	BASIC

How to Load

LOADING FROM THE MENU

To get started, C-64 users should type `LOAD "MENU 64",8` and press the RETURN key. When you see the Ready prompt, the menu is loaded; simply type `RUN` to see a list of the programs on your disk. C-128 users need only press the SHIFT and RUN-STOP keys. When the program titles are displayed on the screen, you can run the one you select by pressing a single key.

LOADING FROM THE KEYBOARD

If you prefer not to use the menu program, follow these instructions:

C-64: To load a C-64 program written in Basic, type: `LOAD "DISK FILENAME",8` and then press the RETURN key. The drive will whirl while the screen prints `LOADING` and then `READY` with a flashing cursor beneath. Next type `RUN` and press the RETURN key. The program will then start running. Type `LOAD "DISK FILENAME",8,1` to load a C-64 program that is written in machine language (ML).

C-128: All C-64 programs can be run on the C-128 as long as your computer is in 64 mode. All C-128 programs are clearly labeled on the directory page. Your C-128 *must* be in 128 mode to run these programs. To load a 128 mode program, press the F2 key, type the filename and then press the RETURN key. Type `RUN` when the program has loaded.

MAKING COPIES OF RERUN FILES

Many programs on your ReRUN disk have routines that require a separate disk onto which the program writes or saves subfiles. To use these programs, you must first make a copy of the original program on another disk that has enough free space on it to hold these newly written subfiles.

It's simple to make a copy of a Basic program. Just load it into your computer as outlined above, and then save the program back onto a separate disk that has plenty of free space for extra files.

Copying an ML program is not so simple. You cannot just load and save it; you'll need to use a disk-backup utility program, such as the one on your Commodore Test Demo disk.

Some Like It Hot

By Harold Bentley

AHHHH...SUMMERTIME! Though winter seems cons away, this is a great time to replace that old furnace, purchase add-on heating equipment and take advantage of off-season fuel discounts.

Fuel Compare will help you understand how heating fuel costs measure up to one another at their current prices. The program reviews the cost efficiency of the electric heat pump, standard electric heat, natural gas, oil (#2), propane (LP gas), kerosene (K1), coal, hardwood and softwood.

Using information about the fuels' heating efficiency, the program calculates a standard Energy Cost Index (that is, dollars per unit of heat), which is an accurate basis for comparison. Of course, you'll have to do a little research to gather current fuel prices, but that's merely a few telephone calls.

PROGRAM FEATURES

The program operates from a menu. Options 1-9 present data on each of the nine types of fuel, including energy content, cost per unit and heating system efficiency. Although you can change any of the information, the only change you should usually make is to the cost per unit of each fuel. Call your local fuel suppliers or look in newspapers for current rates. The changes that you make while running the program will not be saved. To change any of the values permanently, you must modify the program.

(Note: The figures given for heating system efficiency are standard, and will be correct for most systems. Keep in mind that any system will lose efficiency as it gets older.)

Once you've entered the various fuel costs, select A from the menu. The computer will calculate and display a table of fuel costs and Energy Cost Indexes (ECIs). From there you can get a bar-graph display and printouts of all the information.

GETTING TECHNICAL: WHAT DOES IT ALL MEAN?

All you really need to know to understand the graph is that the small-

er the bar, the more cost effective the fuel it represents. However, if you're using the information to make a purchase (which is, after all, the whole point), you ought to understand the process more thoroughly.

To calculate the ECI, you need three variables: the fuel's cost per unit, which you provide; its heat content per unit; and the efficiency of the heating system. The ECI calculation is:

$$(\text{COST PER UNIT}) \times (1,000,000) / (\text{ENERGY CONTENT}) \times (\% \text{ EFFICIENCY})$$

The amount of heat given off by a fuel is measured in BTUs (British Thermal Units). One BTU of heat will raise one pound of water one degree Fahrenheit, so heating fuels are commonly discussed in millions of BTUs. The energy content of hardwood, for instance, is 21 million BTUs per cord, whereas softwood has only 17 million.

Still, most heating systems can release only a portion of that potential heat, and are rated according to the percent of heat they release. Gas furnaces, for example, can be up to 97 percent efficient, which means that they release 97 percent of the heating power contained in the gas. Wood-burning fireplaces can be as low as 10 percent, whereas some woodstoves have a rating of 65 percent. Standard (resistant) electric heat is 100 percent efficient, but that doesn't necessarily mean that it's the most economical fuel you can use.

Let's look at an example: Propane produces approximately 94,000 BTUs per gallon, and a good propane furnace can heat with 80 percent efficiency. If propane costs 98 cents per gallon, then its ECI is 13, meaning a million BTUs would cost \$13. Natural gas, on the other hand, might cost 53 cents per 100 cubic feet. With the same 80-percent-efficient furnace, its ECI would be 7 (\$7 per million BTUs), a savings of almost half.

NOT SO FAST

After running Fuel Compare, you might be tempted to rip out your old heating system and replace it with a new, super-efficient one. But hold on—there are other things to consider. Fuel Compare doesn't take into account purchase and installation costs, maintenance bills, fuel delivery charges and convenience, and these are certainly things you want to consider. Still, it's worthwhile comparing the various fuels and heating systems, especially if you're building or need to purchase a new heating system. Fuel Compare can easily demonstrate not only the most economical fuel, but the most stable one in these unstable times.

Yoot

By Kirk Ward

FOR CENTURIES, KOREANS have enjoyed Yoot, a game of strategy and chance. The game challenges two players, Black and White, to race their four game pieces around a board to the Home square. Although shortcuts, extra turns and piggy-backing can help you move quickly, beware, because your opponent can hit you, sending your pieces back to the start.

The pieces begin in a Start box, and Black always moves first. Instead of rolling dice each turn, you "toss" four tiles that are black on one side and white on the other. These tiles appear in the upper-right corner of the screen. The number of black sides showing after the toss is the number of spaces your piece moves. If all of the tiles come up white, you move five spaces. The Korean names for moves of one through five spaces are Doe, Gae, Gul, Yoot and Moe, respectively.

After tossing the tiles, one of your game pieces will turn red. If you want that tile to move, press RETURN. You can choose another tile to move by pressing the space bar and then RETURN.

The playing board is laid out with shortcuts at each corner and in the middle, indicated by large circles and directional arrows. To use a shortcut, you must end a turn on one of the large circles. The next time you move that piece, it will move in the direction that the arrow indicates. If you don't end your turn on a large circle, the piece will automatically bypass the shortcut.

If you end a turn on a space already occupied by one of your pieces, the two will combine into one larger piece and move as one from then on. If you end a turn on a space containing your opponent's piece, the latter is "killed" and returns to the Start box.

Extra turns are awarded for moves of four (Yoot) or five (Moe) spaces, and for killing an opposing piece. An option at the start of the game lets you select whether players can earn one or multiple extra turns in a single move.

When your pieces are heading toward Home, remember that the move from the last circle into the Home area is counted as a space. You don't need an exact roll to enter Home.

As you play, keep these strategies in mind: The large circles provide shortcuts to Home, so end your turn on these spots whenever possible. Combining pieces is the fastest way to get them all around the board, but it's risky because then your opponent can kill more than one at a time. Good strategy and a little luck are the keys to winning at Yoot.

RUN it right: C-64

Roadtest 64

By Peter Lottrup

MAYBE YOU'VE BEEN driving for years, but do you know what green road signs mean? How about a yellow sign with a T on it? If you traveled to Missouri, would you know the name of the capital city? Test your street smarts with Roadtest 64, an entertaining and educational one- or two-player game.

To play, simply run the program, select the number of players, and the race is on. In a one-player game, you try to reach the finish line in the least number of turns. In a two-player game, the blue and red cars compete, and the first one to reach the finish line wins. The first car to move is selected randomly, then they alternate. Each turn, your car will advance either one or two squares, also selected randomly. Once it advances, you answer a question from one of three categories, determined by the color your car lands on. The categories are:

- *Blue*—What does a specific road sign mean? You have three choices.
- *Red*—What type of sign is a certain color? You have three choices.
- *Green*—What is a given state's capital or a capital's state? You must type in the name correctly.

If you answer correctly, your car stays where it is. If you don't, it returns to where it was at the beginning of your turn. You won't see the correct answer, and that question might be asked again later. Questions answered correctly aren't repeated until all the questions in the category have been used. The first car to the finish line is the victor, and is heralded with due fanfare.

There are currently 20 states and state capitals in the game. If you wish to add more, increase variable BL in line 20 by the additional

number. Then add the Data statements to the end of the program, following the pattern of those that are built in.

So, let's see...is Bismark the capital city of North Dakota or South Dakota...?

RUN it right: C-64

Super Keys

By Michael Rebella

FUNCTION KEYS ARE a basic, but not *Basic*, part of C-64 computing. That is, they haven't been until now. With Super Keys, you can program the F1-F8 keys to execute commands from within Basic.

When you run Super Keys, the machine language code found in the Data statements will be poked into memory and enabled. Then type NEW to erase the Basic program; the machine language that handles the function keys will not be affected until you turn your computer off.

The commands that are built into the program are:

- F1—Poke background color
- F2—Poke border color
- F3—Load directory
- F4—Clear screen
- F5—Save "
- F6—SYS
- F7—List
- F8—Load "

CUSTOMIZING SUPER KEYS

This program is simple to adapt. Create several versions to meet your various needs by changing the commands in lines 20-90. M\$(1) in line 20 controls the F1 key, M\$(2) in line 30 controls the F2 key, and so forth.

When changing these lines, note that each command can be no longer than eight characters, so it may be necessary to abbreviate, as in lines 20 and 30, where P{SHIFT O} is used instead of Poke.

To have a command execute immediately, add +CHR\$(13) to the

end of the string, as in lines 40 and 50. The computer will interpret +CHR\$(13) as RETURN. Be sure to count the RETURN as one character when checking the length. Omit the RETURN with commands requiring more information before they execute, such as Save and Poke and SYS, or if a command should be verified before executing, such as NEW. To insert a quotation mark, add +CHR\$(34), as in line 60. This also counts as one character.

Super Keys is especially helpful when using several machine language programs. Rather than remembering all of the SYS addresses, you can enter them on your function keys. For example, you might change line 20 to:

```
20 M$(1) = "S[SHIFT Y]49152"
```

From now on when you're programming in Basic, don't think of your function keys as useless. Transform them into super keys, and put them to work.

RUN it right: **C-64; printer optional**

Movie Phile 64

By Barbara Craig

MOVIE PHILE 128 (May/June 1991 ReRUN) is a handy program that helps C-128 users organize their home video collection. The program has been so popular that I've come up with a version for the C-64. Like its 128 counterpart, this program records and organizes each tape by number. It can display the name, rating, category and location (that is, the counter number) of up to four movies per tape.

CREATING A FILE AND ENTERING DATA

The first thing you must do when you run Movie Phile 64 is create a file on a work disk. From the Main menu choose option 2, then input a filename (13 characters or less), and press RETURN.

Once you've created a file, you can add, delete and change the entries. The program does limit the length of each entry as follows:

Movie name—28 characters

Rating (such as PG-13)—4 characters

Type (such as adventure or science fiction)—20 characters

Counter number—4 digits

Press RETURN to skip over any unused fields. When you've finished typing, check your work. The program gives you the option to change an incorrect entry. If everything's okay, press Y and Movie Phile 64 will write the data to disk, then prompt you to go on or return to the Main menu. Continue entering data until you have completed your file.

The next time you run the program, place your work disk in the drive, choose Main menu option 1 and input the filename. Then you can update, view, search, edit or print out your file simply by choosing the appropriate option from the Main menu.

SOME NOTES ABOUT THE FEATURES

You can browse through your videotape list by selecting option 4. It will prompt you for the tape number to begin with, then you can advance through the tapes using the UP-ARROW key.

In a similar fashion, option 5 lets you search for a movie by title. You just enter the tape number that you want to begin with, then enter all or part of the title (like TREK for STAR TREK). The program will search the tapes and display the results. You can abort a search by holding down the left-arrow key.

When printing your file (option 7), the program asks how many lines will fit on your paper, so experiment first to find the best number. Abort printing by holding down the LEFT-ARROW key.

To delete a movie or a tape, choose option 6 and press RETURN over the entries to be deleted.

File size is limited only by the free space on your disk. Each videotape requires about one block of storage space, so a 1541 disk can hold data on about 660 tapes. With the other Commodore drives, files can be even larger.

RUN Base II

By Hugh McMenamin

WILLIAM COLEMAN'S WONDERFUL program RUNbase was first-published in the January 1990 issue of *RUN*. Without intending to belittle his creation, I've added a few enhancements, which among other things allow you to duplicate the format of an existing database, print a range of data and save your database as a sequential file to be used with word processors. I call the new program RUNbase II, with a grateful nod to its predecessor.

For those familiar with the original RUNbase, feel free to skip to the end. My enhancements are described in the sections beginning with "Duplicating Format Option" and are marked with an asterisk (*).

THE BASICS: CREATE A DATABASE

When you run the program, a Main menu appears. Use the CURSOR and RETURN keys to make your selection.

With the Create a Database option you can either copy the format from an established database file, or you can create a new format from scratch. To copy a format, see the instructions in the section below. Here we will discuss how to create a file from scratch.

To create a file from scratch, enter NO at the Copy Format prompt, then enter the number of fields you want. You can have as many as 16. Then enter the name, size, and type of each. RUNbase II allows up to 47 characters per field and supports the following types:

- Text—Upper- and lower-case alphanumeric characters
- Uppercase—Shifted alphanumeric characters only
- Numeric—Numerals 0-9 and . + -
- Logical—A single character. For example, Y(es), N(o), T(rue), F(alse)

Once you've entered the fields, name the file, and you're ready to enter data. If you've made a mistake, the UP-ARROW key will abort the file.

Open and Close a Database

These options operate just as you would expect. Under the Open command, enter the desired filename without using any wildcards such

as an asterisk (*). Using the Close option not only closes the current database, but also saves your changes.

The Edit Database Submenu

The Edit submenu offers the following choices: Edit Record, Add Record, Next Record, Previous Record, Goto Record, Goto Top, Goto Bottom, Search, Toggle Delete and Exit. Most of these commands are self-explanatory, but a few need some comment.

First, when using Edit Record and Add Record, use the CURSOR keys to scroll through the fields. However, if you scroll up past the top field, the operation aborts. The DELETE and INSERT keys operate normally.

Second, the Toggle Delete option marks and unmarks a record for deletion. A deleted record won't appear in reports, but it isn't removed from the database unless you use the Main menu Pack option.

Finally, the Search option uses the index fields to search through an indexed database. (The Print Reports, Pack and Index options are explained below.)

View and Pack Database

View Database opens a submenu with three options: View Records, Statistics and Exit. View Records lets you flip through your records one at a time. Statistics displays a description of each field, the number of records in the database and the names of the index fields.

Pack Database removes all records from the database that have been marked for deletion and "packs" the remaining records together to fill in the gaps.

Index Database

Index Database sets the index fields. For viewing purposes, the database is sorted alphanumerically by these fields, but with lowercase preceding the uppercase. Two fields—primary and secondary—can be active at one time, but the program indexes using only the first 15 characters of the primary field and the first five characters of the secondary field.

Import and Export SEQ File

Import SEQ File reads a sequential file from disk and adds it to the current database, one field at a time. Fields in the sequential file must be separated by a carriage return, and empty fields must consist of a single space followed by a RETURN. After using Import, you must reindex to update the index file.

Export SEQ File is the reverse. It writes the current database to disk as a sequential file, with fields separated by a carriage return.

Print Reports

This option displays a submenu with the choices Report, Dump and Exit. The Report option generates customized reports of the database content. The program asks for the page width—the width of the printed part of the report—and the left margin. The total report width is the page width plus the left margin. You will also be able to select a range of data to print (see below). Then select the fields that you want to print, and choose done.

Dump lists all the fields for each record to the screen or printer, regardless of the total report width.

Disk Drive Stuff and Back to Basic

Disk Drive Stuff offers Directory, Change Drive and Exit options. Back to Basic returns you to Basic mode. Exiting the program automatically saves changes to the database.

THE ENHANCEMENTS:

****Duplicating the Format of an Existing Database***

As with its other functions, RUNbase II's menus will lead you through the duplication process. From the Main menu, select Create a Database. RUNbase II asks if you wish to duplicate another format. Answer Yes, then enter the name of the database whose format you wish to copy. The program will call up the format, and give you the option of modifying the field names and sizes. You can give the new file any name you wish, but the program automatically gives it a modified version of the old, to prevent writing over the existing database.

One use for this option is to increase the length of the fields in a database. First, save all of the data from the database as a sequential file, then revise the format with the Copy Format option, and Import SEQ File to the newly formatted database.

****Printing a Range of Data***

RUNbase II lets you select a range of data to print. From the Main menu, select Print Reports, and then the submenu option Report. If you wish to select a range of data, enter Y at the prompt, and follow

the prompts to define the range. To print all of your records, choose None at the Selection menu.

****Printing Labels***

I've added a Label option to the Print Reports submenu. When selected, it shows your established record. Answer No to Is this correct? and the field will clear so label construction can begin.

Each label can have up to five lines made up of various fields. However, each line can be no more than 40 characters. For example, the first line might be made up of the following fields: First Name, Middle Initial, Last Name.

After inputting the fields to print on a line, move the bar to Next Line and press return. To print an empty line, type one space character, then choose Next Line. Proceed through the prompts, and when you respond Y to the Save Format prompt, the displayed format will save as yourfilename.lbl.

****Creating a Sequential File: Exporting and Importing Text***

I've added a routine that saves the data from your database as a sequential file named YOURFILENAME.TMP. Thus, you can use the data in any word processor (able to read sequential files) as formatted copy or, in the case of labels, in a mail-merge program. Labels are stored as five lines followed by an empty line, which is correct spacing for 3 1/2-by-15/16-inch labels. You will find this feature under the Report, Label or Dump menu options.

****Using Numeric Fields and RUNbase Compatibility***

When you identify a file as numeric type, the program will ask if you want decimals. Answering Yes displays the numeric data to two decimal points, right-justified.

Adding the decimal function required another variable, FH%(1), which makes RUNbase II files incompatible with the original RUNbase program. To load RUNbase files into RUNbase II, remove that variable from line 2400. Then all you need to do is input one record from the RUNbase file. The entire file will automatically reformat to fit RUNbase II. Then quit the program, and the database will automatically save with its new format. Note that the reformatted file will no longer work with the original RUNbase. This program change is only temporary, and RUNbase II must be reloaded to function properly.

I included a second feature for working with numeric fields. Each

numeric can be totaled at the time of printing. If the field size is too small to show the entire total, the total's place will be blank. Thus, you can enter ZIP codes as numeric fields of five spaces, but the meaningless total won't print. Prudence dictates that you input telephone numbers as text. If they were numeric quantities, the hyphen would be interpreted as a minus sign.

****Pitch: Pica or Elite?***

The default pitch is Pica, but the program automatically converts to Elite spacing when the page width (PW) is more than 79 characters. However, the Dump command always prints in compressed type, so that it can display all the fields on one line (up to 132 spaces). (I designed this feature using the C-ITOH Jr. printer, which is equivalent to the Epson.) Elite type can't be used with NLQ selected on the printer.

The printer values follow ESC(27) in lines 4560-4570 of the program. If your printer uses other values, you may have to change these lines or eliminate them entirely. This feature doesn't work on the Legend 80a.

RUN it right: C-64

RUN Copy II

By David W. Martin

EVERY COMMODORE OWNER knows that copying disks using a 1541 drive and its companion backup program can be a frustrating process, sometimes taking 20 minutes to back up one disk. With RUN Copy II you can copy a disk in under three minutes using either one or two disk drives. What's more, if you have just one drive, an entire disk copy only needs three swaps.

The speed increase is possible because a program residing in the disk drive's RAM lets the drive send or receive two bits of data simultaneously rather than just one. One bit is sent over the serial data line and one over the serial clock line.

RUN Copy II supports only devices 8 and 9. Sometimes additional peripherals, such as a third drive, printer or fast-load cartridge, will con-

fuse your computer, and cause the program to malfunction. If you run into problems, simply remove all peripherals except devices 8 and 9.

Remember, if you only need to copy a few files, you will save time by using a file copier like RUN Shell or RUN Copy.

Making Copies

After running, the program will display the source and destination drives, along with the following menu:

1. Copy disk
 2. Disk directory
 3. Change device number
 4. Set source and destination
 5. Exit to basic
- Source drive: 08 Destination drive: 08

Option 1 starts the copy process. The computer will ask you to insert the source and destination disks. If errors occur during reading and writing, the computer displays the appropriate message. Such errors are not transferred to the destination disk. Instead, those tracks or sectors are formatted and left empty.

Option 2 displays the source disk's directory. Option 3 changes the default drive from device eight to device nine, or vice versa.

Option 4 lets you select which disk drive(s) to use as the source and destination.

RUN it right: C-64; joystick

Math Matcher

By Jon Dearden

ON THE DOUBLE NOW! What's 15 times 15? Okay then, 5 times 5? Math Matcher is an arithmetic quiz game for all ages that requires quick thinking and fast action. It's great for developing math skills and the ability to think on the run. The program requires a joystick plugged into port 2.

Various options make the game flexible. You can play on your own

or challenge an opponent; choose addition, subtraction, multiplication, division, or a random mixture of them all; and pick any number from 5 to 30 as the highest number to appear in the problems (always input as two digits, so include a leading zero with 1-9).

The screen shows a matrix of 35 boxes, all but one containing a randomly chosen number. These numbers are potential answers. The current problem is framed in white in the center box. Find the answer and use the joystick to move the white frame over it, then press the fire button. If you're right, a tone sounds and a diamond appears at the top of the screen. If you're wrong, a buzzer sounds and you try again.

Each round you must correctly answer three problems, and as the level of play increases the amount of time you have decreases. The first level gives 60 seconds, the second 55 seconds, and so forth. If you run out of time, the buzzer sounds, you lose a "man" from the upper-right corner of the screen, and you must repeat the level. When all three of your men are gone, the game is over.

The program awards points for each correct answer, plus bonus points for each second remaining on the clock at each level. At the end of the game, it displays the final scores and level reached by each player.

Get the whole family to try Math Matcher. The options and the action add up to fun! ■

RE **== RUN**

EDITOR-IN-CHIEF

DENNIS BRISSON

TECHNICAL MANAGER

TIM WALSH

MANAGING EDITOR

VINOY LAUGHNER

PROOFREADER

JANICE GREAVES

COPY EDITOR

PEG LePAGE

ART DIRECTOR

HOWARD G. HAPP

DESIGN AND LAYOUT

ANN DILLON

TYPESETTING

DEBRA DAVIES

FULFILLMENT CONSULTANT

DEBBIE BOURGAULT

8 Programs on this Disk

From the July/August RUN:

- Some Like It Hot (Fuel Compare)
- Yoot
- Roadtest
- Super Keys

Plus These Bonus Programs:

- Movie Phile 64
- RUNBase II
- RUN Copy II
- Math Matcher

If any manufacturing defect becomes apparent, the defective disk will be replaced free of charge if returned by prepaid mail within 30 days of purchase. Send it, with a letter specifying the defect, to:

ReRUN • 80 Elm Street • Peterborough, NH 03458

Replacements will not be made if the disk has been altered, repaired or misused through negligence, or if it shows signs of excessive wear or is damaged by equipment.

ReRUN contains programs taken directly from listings prepared to accompany articles in *RUN* Magazine, as well as bonus programs. These programs will not run under all system configurations. As your guide, use the RUN It Right information included with each article.

Entire contents copyrighted 1991 by TechMedia Publishing, Inc., an IDG, Inc., company. Unauthorized duplication is a violation of applicable laws.

© Copyright 1991 TechMedia, Inc.

